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| **To:** | Brandi N. Thomas | **From:** | Yin Liu |
| **Fax:** | 703 872 ~~2000~~ 9306 | **Pages:** | 5 |
| **Phone:** | 571 272 2341 | **Date:** | 6/13/2005 |
| **Re:** | Application No. 10/822,124 | **CC:** | |

☐ **Urgent** ☐ **For Review** ☐ **Please Comment** ☑ **Please Reply** ☐ **Please Recycle**

**Hi Brandi**

**Please see the attachment for my response to your comments on my patent application No. 10/822,124. If you have any question, please call me at 510 209 7469, or email me at: yinliu@iwmicrosystems.com**

**Thanks!**

**Yin Liu**



PAGE 1/5 * RCVD AT 6/13/2005 2:24:34 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-1/4 * DNIS:8729306 * CSID:650 777 0958 * DURATION (mm-ss):01-52

Yin Liu
37466 Stonewood Dr.
Fremont, CA94536

June 13, 2005

Ms. Brandi N. Thomas
U.S Department of Commerce
Commissioner for Patents
P.O.Box 1450
Alexandria, Virginia 22313-1450

Re: Art Unit 2873, Confirmation No. 2468, Application No. 10/822,124

Dear Ms. Thomas

Thank you for your response to my patent application (No. 10/822,124). In your letter dated May 19, 2005, you mentioned that my patent is anticipated by Robinson et al's patent (No. 6031657). This is not correct. The following are the differences between my patent application (No. 10/822,124) and Robinson et al's patent (No. 6031657).

**My Patent Clam 1**: The display does not have collector grid. In Robinson et al's patent, the collector grid is an un-dismissible part of their display system. Thus the two patents are different.

> Robinson et al. discloses, in Figures 2a, 2b, and 3, and Col. 7, lines 40-57, "a vacuum packaged Thin-CCM image 50 marries a flat-panel source technology such as a field emitter array (FEA) 52 with a CCM faceplate 54. FEA 52 is composed of row and column conductors separated by an insulating layer with interspersed field emitter tips 56 on an insulating substrate 58, such as glass. Drive electronics 60 scan the rows sequentially from top to bottom. As each row is selected, the columns are driven to modulate the current in the pixels of the selected row and thereby control the electron emission from tips 56. The emitted electrons are focused and accelerated to strike a thin insulating membrane 57 that decouples CCM 54 from FEA 52 thereby ejecting secondary electrons, which are collected by a **collector grid** 53. The controlled modulation of flat-panel electron source 52 combined with the collection of secondary electrons forms a charge pattern on membrane 57 that produces attractive electrostatic forces that deflect an array of cantilevered micromirrors 64 formed on front glass 66."
>
> Also Robinson et al. discloses in claim 1 (Col. 12, lines 18-52), "1. A projection display, comprising:
>
> a light source that emits light;
>
> a turning mirror that redirects the light;

a field lens that collimates the light;

a large aperture reflective imager that imparts a spatial modulation onto the collimated light, said spatially modulated light being reflected back through said field lens where it is focused onto a plane, said imager comprising

a vacuum cell;

a charge controlled mirror (CCM) mounted in said vacuum cell, comprising,

a glass substrate;

a transparent equipotential layer on said glass substrate;

an array of electrostatically-actuable micromirrors on said equipotential layer that are both held at an reference potential;

an array of insulating posts on said substrate;

a floating-potential insulating membrane supported by said posts above said array of micromirrors; and

a **collector grid** *spaced apart* from said insulating membrane opposite said micromirrors and held at a grid potential; and

a source that emits primary electrons that are accelerated through said collector grid and strike portions of said insulating membrane above respective micromirrors causing secondary electrons to be ejected and collected on the collector grid thereby leaving a predetermined charge pattern on said membrane that produces finely-resolved attractive electrostatic forces that cause said micromirrors to pivot and deflect towards the membrane thereby imparting said spatial modulation onto said collimated light;

a Schlieren stop at said plane that converts the spatially modulated beam into an intensity modulated beam; and

a projection lens that collimates the intensity modulated light to form an image."

**My patent claims 2-3** are based on the display system without a collector grid. While all Robinson et al.'s claims and disclosures use collector grid.

**My patent claim 4:** has a collector grid at different position as Robinson et al's patent.

My patent claim 4 says: "The projection display of claim 1, wherein a conductive collector grid array is attached on said dielectric membrane such that it can be held

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at a collector potential with respect to the mirror voltage." The position of the collector grid is different from Robinson et al.'s patent.

Robinson et al. discloses, in claims 1 (col. 12, lines 40-42), 16 (col. 14, lines 11-13), and 26 (col. 15, lines 27-29), "a **collector grid** spaced apart from said insulating membrane opposite said micromirrors and held at a grid potential".

**My patent claims 5-7** are based on the claim 1, which is different from Robinson et al.'s patent. Thus my patent claims 5-7 are different from Robinson et al.'s patent.

**My patent claim 8** is to produce an infrared image on the screen, while Robinson et al.'s patent is to produce an image on the screen **without** infrared light.

My patent claim 8 says: "The projection display of claim 1, wherein said light source emits infrared components of light for producing infrared image on said screen."

Robinson et al. claims, in col. 8, lines 10-12: "A cold mirror 106 passes the infrared component of the light and directs the collimated "**cold**" light to a condenser lens 108."
*The cold light means a light without infrared component because the infrared component passes the cold mirror. Only the light without the infrared component is reflected by the mirror.*

**My patent claim 9** is to produce an ultraviolet image on the screen, while Robinson et al.'s patent is to produce an image on the screen **without** ultraviolet component.

My patent claim 9 says: "The projection display of claim 1, wherein said light source emits ultraviolet components of light for producing ultraviolet image on said screen."

Robinson et al. claims, in col. 8, lines 8-10: "The arc lamp produces divergent light, which is collimated by collection optics 104, selected to absorb the ultraviolet component of the light."
*When the ultraviolet component is absorbed by the collection optics, only the light without ultraviolet component can pass the optics, and make a image without ultraviolet.*

**My patent claims 10-13** are based on the claim 1, which is different from Robinson et al.'s patent. Thus my patent claims 10-13 are different from Robinson et al.'s patent.

**My patent claim 14** is based on the claim 4, which is different from Robinson et al.'s patent. Thus my patent claim 14 is different from Robinson et al.'s patent.

**My patent claims 15 and 17** are based on the claim 10, which is different from Robinson et al.'s patent. Thus my patent claims 15 and 17 are different from Robinson et al.'s patent.

**My patent claim 16** is based on the claim 15, which is different from Robinson et al.'s patent. Thus my patent claim 16 is different from Robinson et al.'s patent.

I also have questions regarding to the references. Please contact me regarding to this issue. I can be reached by phone No. 510 209-7469, or email: yinliu@lwmicrosystems.com.

Thanks!

Sincerely,

Yin Liu

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